

# THE LASER - A SH

THE LASER 200 IS THE CHEAPEST COLOUR COMPUTER IN THE UK. BUT WITH A SMALL MEMORY OF ONLY 4K AS STANDARD

if the Laser looks familiar, don't worry — there is a good reason. Those readers with long memories will recall a micro called the Textet TX8000, which we reviewed in our March 1983 issue.

At that time we were not too enthusiastic about the TX8000's future, and this pessimism seems to have been justified. After a couple of months we stopped hearing about it, and it was assumed that the machine was extinct. The recent introduction of the Laser, now being handled in this country by Computers For All, brought the same computer back into circulation in a modified form with £30 chopped off the

price. And the Laser may well have a brighter future ahead of it at £70 for the 4K computer plus £30 for a 16K RAM pack.

The machine remains fundamentally similar. It is an elegant-looking micro in a tough plastic case, slightly larger than the Spectrum and about the same size as an Oric. At the heart of the Laser is the familiar Z80A central processor, and a rather inadequate 4K of RAM.

From the outside, the Laser is considerably more impressive than some of the sub-£100 micros we have seen in recent months. Sporting such daring innovations as an on/off switch (one

better than the ZX81, Spectrum, Acorn Electron and many others), and a monitor outlet for connection to a monochrome monitor (a major bonus for eye-strained programmers), there is no evidence of over-zealous activity by the cost-cutting department.

Apart from the usual cassette interface and a UHF outlet for connection to a domestic television set, the rear edge of the computer also carries a pair of neat plates. When unscrewed, these uncover a pair of Sinclair-style edge connectors, devoted to the optional 16K RAM pack and a Sordisha dot matrix printer.

The Laser keyboard is rather better



# NOT IN THE DARK?

DARD. WILL THE NEED FOR AN EXTRA 16K RAM PACK MAKE THE LASER AN EASY TARGET FOR THE £99 SPECTRUM?

than that of some of its rivals, and entering our test programs was notably quick and easy. The light action of the keys, combined with a quiet 'blip' when the appropriate letter is generated, leaves the inexperienced user free to look at the keyboard rather than the screen.

Complete non-typists are also catered for, since by depressing the Control key with another key, a complete Basic keyword is produced. Having the option of this method is much more satisfactory than the compulsory usage imposed by the various Sinclair machines, where it often takes longer to find a short keyword on the cluttered keyboard than it would to

tap it in, letter by letter.

Our only complaint with the keyboard is that when typing at speed, a key would occasionally stick down, and the fast auto repeat would then produce a maddening series of blips as the screen filled with unwanted characters.

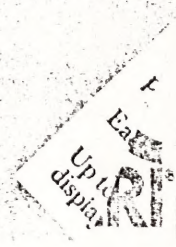
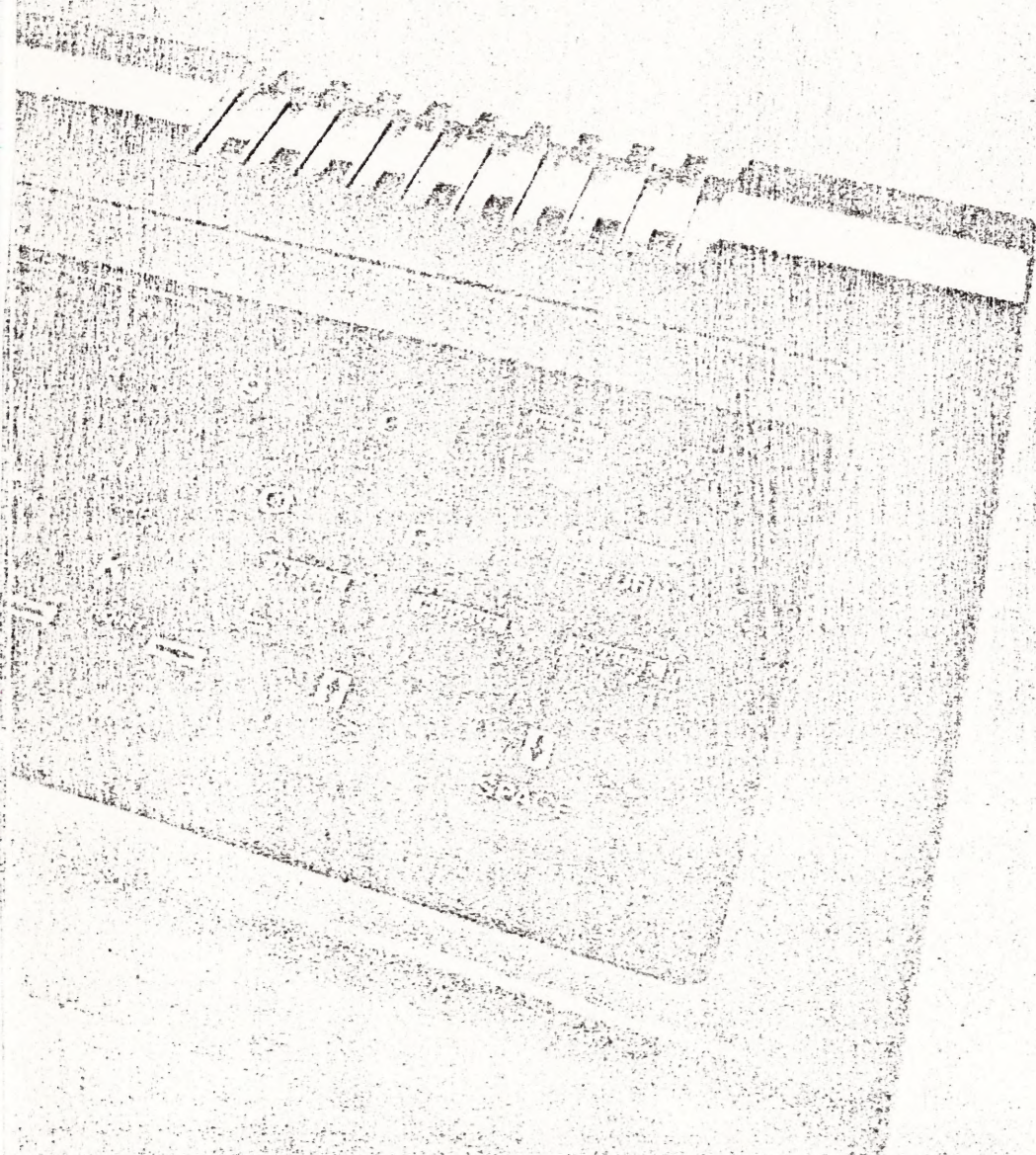
Remembering the somewhat crude internal construction of the Textet, we opened up the sturdy case expecting the worst. It was a pleasant surprise to see that the internal layout has been changed, suggesting that Video Technology, the Oriental manufacturer of the Laser, has not been idle in the last few months.

The standard of electronic workmanship

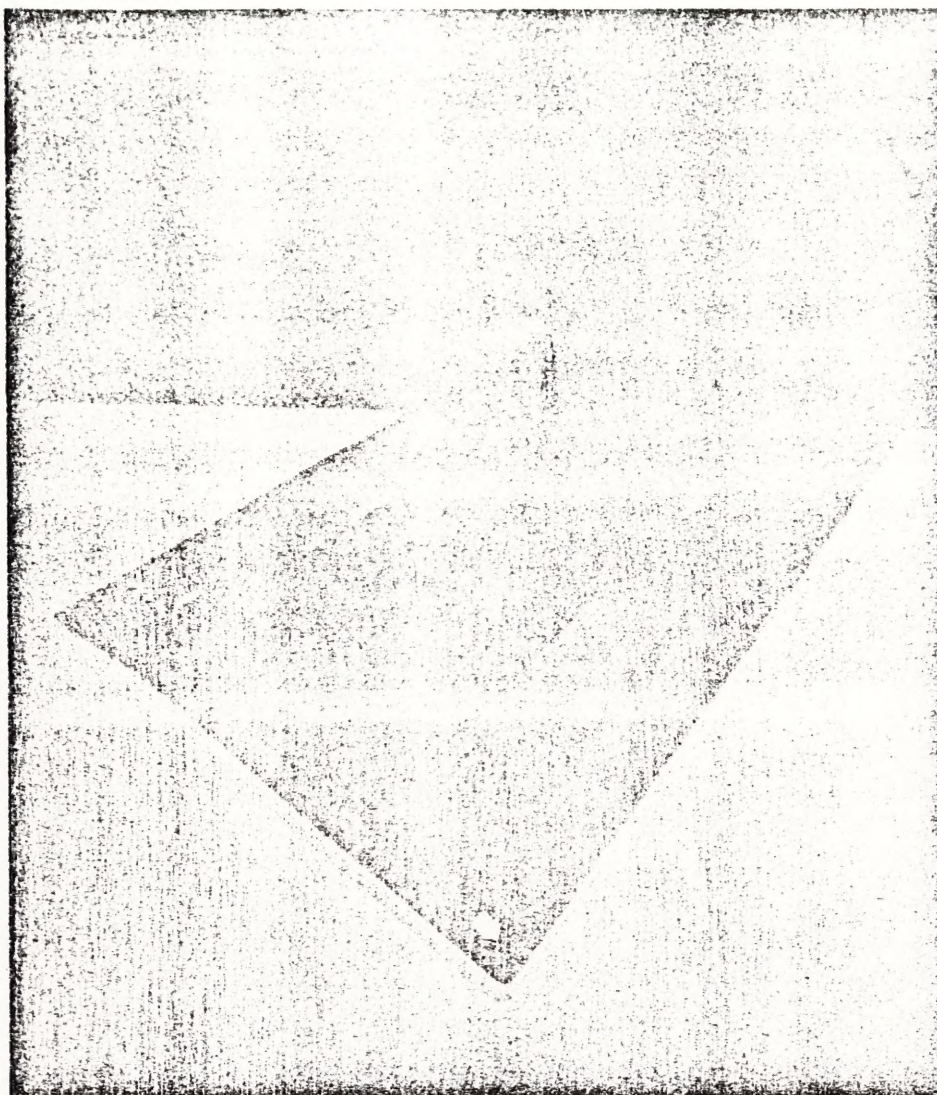
is still not as high as that produced by leading European and American manufacturers, but the ugly blobs of glue have vanished and the soldering seems considerably neater than before.

Plugging in the external power supply (now of the type fitted with a separate plug at the end of a lead) we switched on, to see if these changes had been reflected in the Laser's performance as a computer.

The Basic remains very close to the 8K Microsoft which many readers will know. There are still no handy toolkit commands, such as a line or variable trace, line renumber utility or even automatic line numbering, but the Basic is a known







SPECIFICATIONS	
Processor	6502
RAM	128K
ROM	256K
Display	128 x 64
Sound	Beep
Keyboard	Standard
Power	500mA
Price	£100
Availability	Available
Supplier	Computers for All
Location	Throughout the UK

chunky graphics characters are available à la ZX81, but no user-defined character facility is available.

One bright spot is the provision of a sound facility on the Laser. Producing beeps through an on-board speaker rather than the television set, the resulting sound is similar to that of the Spectrum, though considerably louder.

Sound can be modulated by altering pitch and duration of the note, but there is no provision for white noise in Basic, and in common with the Spectrum, the Laser will need interrupt-driven sound produced by machine code if the action is not to stop while the sound effects take place.

Documentation is quite reasonable for a £70 micro, with a helpful guide to Basic programming enclosed with a brief 'how to switch it on' user guide and a booklet of short Basic program listings. These are mainly short mathematical routines.

As it stands, the Laser is a perfectly competent little machine, but it lacks the sparkle it needs to be a real success.

Recently seen at the Chicago Consumer Electronics Show was the Video Technology Laser 3000, a much more impressive machine with a fast 6502 processor and between 64K and 192K of RAM. With colour graphics capable of a resolution of 560 x 192, it matches all comers for graphics, and the four-channel sound generator is a great advance over the Laser 200's beeping speaker.

This is definitely the way the home computer market is moving, as forthcoming machines like the Atari 600 and Adam show. It's a pity that the 200 has been chosen in favour of the 3000 for Video Technology's entry in the UK market. Let's hope that Computers for All is fast off the mark with the new micro. ■

COMMENT	
The Laser's main claim to fame is that it is the cheapest colour computer available in the UK. Indeed, at its current retail price of £70, it undercuts the main opposition by about £30. But most users will find it necessary to buy the 128K memory expansion, and this raises the price to about the same level as the 128K Orson Spectrum.	
The 128K may be just about adequate for a few experiments in the world of programming, but we would be very surprised if many games for the first-class machine become available.	
But at the £100 mark, the 128K Spectrum offers real headaches for its potential rival, with its unmatched software support and a good choice of add-on peripherals.	

quantity and not subject to any drastic bugs.

There has been some improvement, however, as we found out when we tried the only thing which caused a complete system crash during our test of the Text. Previously, typing LLIST or LPRINT (the commands to print or list the program on the printer) when no printer was attached caused the machine to freeze up completely, switching off being the only way of regaining control.

The Laser is sufficiently smart to recognise that there is no printer fitted, and it just ignores printer commands when they are not appropriate.

The quality of the display is good, and the standard green background makes text

easy to read. The user is free to change the colours to any combination of the eight available — green, yellow, blue, red, buff, cyan, magenta and orange.

Unlike some recently introduced micros, the Laser has a first-rate screen editor for the alteration of Basic programs. This is very important for beginners who are likely to miss their mistakes until the complete program has been typed in. Correcting the errors is quick and easy with the Laser.

One disappointment is the lack of a lower-case display. In common with a disturbing number of recent releases, the Laser is made to look rather old-fashioned by this omission. Graphics fans may also be rather disappointed by the low resolution available in the so-called 'high resolution' graphics mode — a mere 128 x 64, which means that fine plotting is out.

Graphics plotting is only possible one pixel at a time, using the commands SET and RESET, so graphics displays are likely to involve a lot of laborious work and a lot of program space.

Although one games software house, Abbex, is known to be producing games for the Laser; even the best programmers will find these graphics restrictions a handicap when trying to produce the kind of arcade action which has propelled the Spectrum and its attendant software to the top of the popularity charts.

In the text display mode, a number of

INSBURY BENCHMARK	
BENCHMARK TIMINGS (in seconds)	
Test 1	1.0
Test 2	1.5
Test 3	2.0
Test 4	2.5
Test 5	3.0
Test 6	3.5
Test 7	4.0
Test 8	4.5
Test 9	5.0
Test 10	5.5
Test 11	6.0
Test 12	6.5
Test 13	7.0
Test 14	7.5
Test 15	8.0
Test 16	8.5
Test 17	9.0
Test 18	9.5
Test 19	10.0
Test 20	10.5
Test 21	11.0
Test 22	11.5
Test 23	12.0
Test 24	12.5
Test 25	13.0
Test 26	13.5
Test 27	14.0
Test 28	14.5
Test 29	15.0
Test 30	15.5
Test 31	16.0
Test 32	16.5
Test 33	17.0
Test 34	17.5
Test 35	18.0
Test 36	18.5
Test 37	19.0
Test 38	19.5
Test 39	20.0
Test 40	20.5
Test 41	21.0
Test 42	21.5
Test 43	22.0
Test 44	22.5
Test 45	23.0
Test 46	23.5
Test 47	24.0
Test 48	24.5
Test 49	25.0
Test 50	25.5